

Enterovirus Encephalitis Increases the Risk of Attention Deficit Hyperactivity

Disorder: A Taiwanese Population-Based Case Control Study

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ABSTRACT

Background: Enterovirus (EV) infection is a major public health issue throughout worldwide with potential neurological complications. This study evaluated the relationship between attention deficit hyperactivity disorder (ADHD) and EV encephalitis in children.

Methods: Data of reimbursement claims from the National Health Insurance Research Database of Taiwan were used in a population-based case control design. The study comprised 2646 children with ADHD who were matched according to sex, age, urbanization level of residence, parental occupation, and baseline year, to people without ADHD at a ratio of 1:10. The index date of the ADHD group was the ADHD date of diagnosis. Histories of EV infections before the index dates were collected and recategorized according to the severity of infection.

Results: Compared with the children without EV infection, the children with mild EV infection had a 1.16-fold increased risk of ADHD (OR=1.16, 95% CI=1.07–1.26), and the children with severe EV infection had the highest increased risk of ADHD (OR=2.82, 95% CI=1.05–7.57). The results also revealed a significant correlation between the increased trend of ADHD and the severity of EV infection (p for trend = 0.0001).

Conclusion: Patients with EV encephalitis have an increased risk of developing ADHD. Although most EV encephalitis in children has a favorable prognosis, it may be associated with significant long-term neurological sequelae, even in children considered fully recovered at discharge. Neuropsychological testing should be recommended for survivors of childhood EV encephalitis. The causative factors between EV encephalitis and the increased risk of ADHD require further investigation.